

What is claimed is:

1. An organic semiconductor element, comprising
an organic semiconductor layer as a current channel;
a gate insulation layer consisting of an insulating material of an organic compound;
a gate electrode opposing to said semiconductor layer so that said gate insulation layer is interposed between said gate electrode and said semiconductor layer;
a source electrode and a drain electrode electrically connected in the vicinity of the two ends of the organic semiconductor layer respectively; and
a gate oxide film consisting of a gate electrode material oxide between said gate electrode and said gate insulation layer.
2. The organic semiconductor element according to claim 1, wherein said gate insulation layer is formed from a resin that is soluble in an organic solvent.
3. The organic semiconductor element according to claim 1, wherein said gate insulation layer is formed from a resin that is obtained from a monomer or oligomer that is soluble in an organic solvent.
4. The organic semiconductor element according to claim 1, wherein said gate oxide film is formed by means of anode oxidation.
5. The organic semiconductor element according to claim 1, wherein said gate electrode consists of Al or Ta.

6. The organic semiconductor element according to claim 1, wherein said organic semiconductor layer consists of a low molecular organic compound.

7. The organic semiconductor element according to claim 1, wherein said organic semiconductor layer consists of a high molecular organic compound.

8. The organic semiconductor element according to claim 1, further comprising an intermediate layer consisting of an inorganic material between said gate oxide film and said gate insulation layer.

9. A fabrication method for an organic semiconductor element having an organic semiconductor layer as a current channel, a gate insulation layer consisting of an insulating material, a gate electrode opposing to the semiconductor layer with the gate insulation layer interposed between the gate electrode and the semiconductor layer, and a source electrode and a drain electrode electrically connected in the vicinity of the two ends of the organic semiconductor layer respectively, the fabrication method comprising:

a gate electrode oxidation step of forming a gate oxide film by oxidizing a portion of the gate electrode; and

a gate insulation layer formation step of forming the gate insulation layer consisting of an organic compound so as to cover the gate oxide film.

10. The fabrication method according to claim 9, wherein said gate electrode oxidation step is an anode oxidation step.

11. The fabrication method according to claim 9, wherein said gate insulation layer formation step includes a resin material placement step of placing resin material by means of spin-coating.

12. The fabrication method according to claim 9, wherein said gate insulation layer formation step includes a resin curing step of performing resin curing by means of heat treatment.

13. The fabrication method according to claim 9, wherein said gate insulation layer formation step includes a resin curing step of performing resin curing by means of light irradiation.

14. The fabrication method according to claim 9, further comprising an intermediate layer formation step of forming an intermediate layer consisting of an inorganic material between said gate electrode oxidation step and said gate insulation layer formation step.